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## II. Remarks

Claims 1-5, 7, 9-13, 16, and 17 stand rejected. Claims 1-3, 5, 7, 9, 11-13 and 17 are being amended. Accordingly, after entering these amendments, claims 1-3, 5, 7, 9-13, 16, and 17 remain pending.

As amended, independent claims 1 and 12 now recite a system and a method, respectively, for estimating body states of a vehicle by measuring two acceleration signals in each of two directions. Specifically, a first linear accelerometer and a second linear accelerometer measure the acceleration of the vehicle in a first direction, and a third linear accelerometer and a fourth linear accelerometer measure the acceleration of the vehicle in a second direction.

Reconsideration and re-examination of this application in view of the above amendments and the following remarks is herein respectfully requested.

*Claim Objection*

Claims 1 and 12 have been objected to for informalities. In response, both claims 1 and 12 have been amended for clarity, rendering this objection moot. Applicants respectfully request the withdrawal of this objection.

*General Comments on the Cited Art*

In a previous office action of May 2, 2006, the Examiner cited U.S. Patent Publication 2005/0149240 to Tseng et al. (Tseng). Tseng estimates the body state of a vehicle using a fairly complex set of inputs from a variety of different sensors. These sensors include multiple accelerometers, yaw rate sensors and

steering angle sensors. These sensors are not only costly but are difficult to implement. These demands have prevented the widespread use of such a system.

The present application seeks to provide a system as effective as any prior art system without the need for a wide variety of different sensors which are expensive and difficult to implement. The present claimed invention uses four linear accelerometers to provide the necessary inputs to estimate the body state of a vehicle. Two of the linear accelerometers are located in separate locations and measure the acceleration of the vehicle in a first direction. In like manner, the other two accelerometers are located in separate locations and measure the acceleration of the vehicle in a second direction.

Each direction requires two accelerometers located in separate locations because a single accelerometer cannot accurately measure the acceleration of the vehicle in the specified direction. The Applicants discovered that two accelerometers mounted in separate locations of the vehicle can accurately measure the acceleration in the specified direction with the aid of a signal adjuster.

The signal adjuster transforms the measured inputs from the accelerometers and converts these inputs into a body coordinate system associated with the vehicle. A filter receives the transformed measured signals from the signal adjuster and processes the measured signals into body state estimates of the vehicle including a roll rate, a roll angle or a yaw rate. As stated

previously, this is accomplished without the need of expensive and difficult to implement sensors, such as those disclosed in Tseng.

*Claim Rejections - 35 U.S.C. §102(e)*

In the previous office action of May 2, 2006, claims 1-5, 7, 9-13, 16, and 17 were rejected under 35 U.S.C. §102(e) as being anticipated by Tseng.

Tseng discusses a system for controlling a safety system of a vehicle with multiple sensors. Specifically, Tseng's system includes a lateral acceleration sensor (32) that measures the acceleration of a vehicle in a first direction, a vertical acceleration sensor (35) that measures the acceleration of the vehicle in a second direction , and a longitudinal acceleration sensor (36) that measures the acceleration of the vehicle in a third direction. Hence, Tseng's system measures three orthogonal linear accelerations with respective acceleration sensors, along with three orthogonal angular rates with respective angular rate sensors, to determine the state of the vehicle.

Unlike Applicant's invention recited in amended claims 1 and 12, Tseng does not describe the use of a first linear accelerometer and a second linear accelerometer mounted in separate locations that measure the acceleration of the vehicle in a first direction and a third linear accelerometer and a fourth linear accelerometer mounted in separate locations that measure the acceleration of the vehicle in a second direction to calculate the body state of a vehicle. In addition, Tseng does not disclose using multiple linear accelerometers to

calculate body state estimates include at least of one a roll rate, a roll angle and a yaw rate.

Accordingly, since Tseng does not teach each and every element recited in claim 1 or claim 12, reconsideration of the rejections under 35 U.S.C. §102(e) and the allowance of amended claims 1 and 12 are respectfully requested.

Further, since claims 2, 3, 5, 7, 9-11, 13, 16, and 17 depend from claims 1 or 12, these claims are allowable for at least the same reasons given above in support of claims 1 and 12. Accordingly, allowance of these claims is respectfully requested.



*Conclusion*

In view of the above amendments and remarks, it is respectfully submitted that the present form of the claims are patentably distinguishable over the art of record and that this application is now in condition for allowance. Such action is respectfully requested.

Respectfully submitted by,

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